

AMENDMENTS TO THE DRAWINGS

Delete Fig. 3 presently on file in favor of Replacement Figs. 3a through 3d, which illustrate details of the invention recited in the pending claims.

Attachment: Replacement Figs. 3a through 3d.

REMARKS

Claims 1-12 are pending in the present application. Claims 1 and 4 are in independent form.

I. Drawings:

The Examiner objects to the drawings for failing to show features of the claimed invention, inclusive of the switching device, the integration circuit, the compensation circuit, and the evaluation circuit. Although Applicants do not necessarily agree with this objection, in an effort to expedite prosecution, the following has been submitted.

To address the Examiner's concerns, Applicants delete Fig. 3 presently on file in favor of Replacement Figs. 3a through 3d. The replacement figures show exemplary, non-limiting embodiments of the switching device 14, the integration circuit 12, the compensation circuit 18 (Figs. 3a and 3b), 21 (Figs. 3c and 3d), and the evaluation circuit 16 (Figs. 3a and 3b), 20 (Figs. 3c and 3d).

More specifically, Figs. 3a and 3c depict exemplary embodiments in which the secondary winding 5 may be used as a compensation winding (i.e., a separate compensation winding is not provided). In both Figs. 3a and 3c, the "integration circuit" 12 may be connected to (1) the secondary winding 5 via a two way switch 15, and (2) a trigger circuit 13 of a switchgear 14 (or "switching device"). The "compensation circuit" 18 (Fig. 3a), 21 (Fig. 3c) is also connected to the secondary winding via the two way switch 15. The "evaluation circuit" 16 (Fig. 3a), 20 (Fig. 3c) is a constituent element of the compensation circuit.

Figs. 3b and 3d depict exemplary embodiments that are somewhat similar to those depicted in Figs. 3a and 3c, respectively. However, a separate compensation winding 17 is provided. The compensation circuit 18 (Fig. 3b),

21 (Fig. 3d) is connected to the separate compensation winding 17 (not the secondary winding 5, as in Figs. 3a and 3c).

Applicants respectfully assert that none of the replacement drawings introduce new matter. This is because information contained in any one of the specification, claims, or drawings of the application as filed may be added to any other part of the application without introducing new matter.¹ In this case, support for the arrangements of elements depicted in Figs. 3a through 3d can be found throughout the originally filed specification. For example, see paragraphs [0016] and [0024]-[0026] of the March 22, 2001 Substitute Specification, as well as claim 4 of the March 22, 2001 Preliminary Amendment. Therefore, Replacement Figs. 3a through 3d merely involve the conformation of one portion (i.e., the drawings) of the disclosure to another portion (the written description and claims) thereof, which is clearly permissible.

II. Substitute Specification:

Applicants submit a voluntary second Substitute Specification along with a marked up copy of the first Substitute Specification (submitted March 22, 2001) showing the additions and deletions to the first Substitute Specification.

The second Substitute Specification only includes the changes indicated on the marked-up copy of the first Substitute Specification. The changes involve (among other things) adding specific references to Replacement Figs. 3a through 3d. The second Substitute Specification does not contain any new matter.

¹ MPEP 2163.06.

III. Claim Rejection under 35 U.S.C. §112 (1st):

A. Written Description:

The Examiner rejects claims 4-8 and 10-12 under 35 U.S.C. §112(1st) because these claims recite terms that allegedly lack adequate written description support in the specification. The objectionable terms include the “switching device,” the “integration circuit,” the “compensation circuit,” and the “evaluation circuit.” Applicants respectfully traverse this rejection for a couple of reasons.

The originally filed specification does in fact discuss all of the objectionable terms. For example, see paragraphs [0016] and [0024]-[0026] of the March 22, 2001 Substitute Specification.

Furthermore, Applicants respectfully point out that the written description requirement may be satisfied by any portion of the originally filed application, inclusive of the claims.² That is, Applicants believe that the originally filed claims themselves provide adequate written description support. In any event, Applicants amend the specification (via the second Substitute Specification) to provide more clear antecedent basis for the claimed subject matter.³

B. Enablement:

The Examiner rejects claims 4-8 and 10-12 under 35 U.S.C. §112(1st) as containing subject matter which is not described in the specification in such a way as to enable one skilled in the art to make and use the invention. The basis for the rejection is that the “switching device,” the “integration circuit,” the “compensation circuit,” and the “evaluation circuit” are not clear or adequately described by the specification. Applicants respectfully disagree.

² MPEP 2163.

³ MPEP 2163.06 III.

With respect to the test for enablement, it is well settled that a patent need not teach and preferably omits, what is well known in the art.⁴ With this in mind, Applicants note that switching devices *per se* are well known in this art, as discussed in the Background section of the present specification.⁵ Moreover, the remaining objectionable terms refer to various circuits for achieving the claimed functionality.⁶ Those skilled in the art of direct current transformers are familiar with circuit design, and therefore could, without undue experimentation, make and use the various circuits defined by the pending claims.

Applicants will be happy to provide any additional information upon the Examiner's request for the same.

IV. Claim Rejection under 35 U.S.C. §112 (2nd):

Claims 4-8 and 10-12 are rejected under 35 U.S.C. 112(2nd) because claim 4 recites terms that are unclear. Specifically, the Examiner asserts that the arrangement among the claimed elements is not clearly defined. Applicants respectfully traverse in part and amends in part.

Claim 4 clearly indicates the arrangement among the various claim elements. According to claim 4, the integration circuit has an output that is connected to the trigger circuit of the switching device. Also, the compensation circuit is connected to "at least one of" **(1)** the secondary winding and **(2)** the separate compensation winding. For example, when the secondary winding 5 is to be used as a compensation winding, the compensation circuit may be connected to the secondary winding 5 via the changeover switch 15 (as shown

⁴ MPEP 2164.01

⁵ March 22, 2001 Substitute Spec., [0003].

⁶ The claimed functionality is discussed rather extensively throughout the specification. See, for example, paragraphs [0016] and [0024]-[0026] of the March 22, 2001 Substitute Specification.

in Replacement Figs. 3a and 3c). But when a separate compensation winding is provided, the compensation circuit may be connected to the separate compensation winding 17 (as shown in Replacement Figs. 3b and 3d).

Applicants amend claim 4 to more clearly indicate that the evaluation circuit is a constituent part of the compensation circuit.

Applicants respectfully submit that amended claim 4 more clearly points out and distinctly claims the subject matter regarded as the invention.

V. Claim Rejections on Prior Art Grounds:

The Examiner rejects claims 1-6, 9, and 10 under 35 U.S.C. 102(b) as being anticipated by DE 42 30 939 to Albrecht et al. ("Albrecht"); and claims 7, 8, 11, and 12 under 35 U.S.C. 103(a) as being obvious over Albrecht.

Applicants respectfully traverse all of these rejections for the following reasons.

Albrecht discloses an apparatus for measuring a primary current based on a compensation technique. The disclosed apparatus is intended to control errors that are caused in particular by the use of a Hall sensor 11. The disclosed current converter is operated with a defined test current via an additional test winding 14. The test winding 14 may then be used to balance the connected measuring device. (see Albrecht, column 4).

However, Albrecht's technique of balancing a current converter with the aid of compensation measuring, which occurs with many conventional converters, does not teach or suggest a direct current measuring technique that involves (1) integrating a current signal that images the time differential of a primary current, and (2) controlling the resulting drift in the integration element by correcting it with a value determined according to a compensation method.

More specifically, Albrecht teaches that a current value (which is determined using the compensation method) is compared to a test current, and

then the corrected operation of the converter (including its evaluation circuit) is checked. Accordingly, even when Albrecht's converter operation is corrected, an error may occur at the integrating circuit output because of a drift. The drift of the integrating circuit output cannot be detected and corrected with Albrecht's test current. Rather, the correction occurs with a current primary value that is determined with a second measuring method. Thus, no thermal-dependent, age-dependent, or other similar errors of the current converter are corrected.

In brief, Applicants respectfully submit that each of independent claims 1 and 4 recite features that are not taught or suggested by the Albrecht reference. Albrecht does not teach at least the following features recited in claim 1:

- (1) *"integrating a current signal supplied from the secondary winding," and*
- (2) *"adjusting the supplied integrated current value ... by the primary current to be measured."*

And Albrecht does not teach or suggest at least the following features recited in claim 4:

- (1) *"integrating a current signal supplied from the secondary winding," and*
- (2) *an evaluation circuit "to adjust the integrated current value of the integration circuit."*

Accordingly, Applicants respectfully request the Examiner to reconsider and withdraw all of the rejections based on the Albrecht reference.

For these reasons, Applicants respectfully submit that claims 1 and 4 are patentable, and that claims 2, 3, and 5-12 are patentable at least by virtue of their dependencies.

CONCLUSION

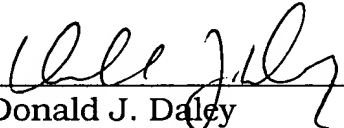
In view of the above amendments and remarks, an early indication of the allowability of all of the pending claims is earnestly solicited.

In the event that any matters remain at issue in the application, the Examiner is invited to contact the undersigned at (703) 668-8000 in the Northern Virginia area, for the purpose of a telephonic interview.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY & PIERCE, P.L.C.

By 
Donald J. Daley
Reg. No. 34,313

P.O. Box 8910
Reston, VA 20195
(703) 668-8000

DJD/HRH:dg